

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (withdrawn) A method for antenna tracking, comprising:
determining complex weightings for matching a polarization of an incident signal on a data channel; and
applying the complex weightings to a tracking channel such that an antenna system polarization is matched to the polarization of the incident signal.
2. (withdrawn) The method for antenna tracking of claim 1, wherein the complex weightings are determined such that a signal power of the incident signal is maximized.
3. (withdrawn) A method for antenna tracking, comprising:
deriving complex weighting values that match a polarization of an incident signal on a data channel; and
applying the complex weighting values and time variations of the complex weighting values to a tracking channel to replicate the polarization of the incident signal over time.
4. (withdrawn) A system for antenna tracking, comprising:
means for measuring a polarization of an incident signal on a data channel and for determining an amplitude and phase combination that matches the polarization; and
means for applying the amplitude and phase combination to a tracking channel responding to variations in the polarization.
5. (withdrawn) The system for antenna tracking of claim 4, wherein the means for measuring a polarization of an incident signal on a data channel and for determining an amplitude and phase combination that matches the polarization includes
a polarization-matching network.
6. (withdrawn) The system for antenna tracking of claim 5, wherein the polarization matching network includes a vector modulator.

7. (withdrawn) The system for antenna tracking of claim 5, wherein the polarization matching network includes a diversity combiner.

8. (withdrawn) The system for antenna tracking of claim 4, wherein the means for applying the amplitude and phase combination to a tracking channel responding to variations in the polarization includes
a polarization-matching network.

9. (withdrawn) The system for antenna tracking of claim 8, wherein the polarization matching network includes a vector modulator.

10. (withdrawn) The system for antenna tracking of claim 8, wherein the polarization matching network includes a diversity combiner.

11. (original) A method for antenna tracking, comprising:
processing orthogonally polarized tracking channel components of an incident signal to make a determination as to which of the orthogonally polarized tracking channel components is stronger; and
using the determination to select a polarization of a data channel to reduce a polarization mismatch loss.

12. (currently amended) A method for antenna tracking, comprising:
determining which of two orthogonal polarization components of an incident signal is a stronger signal component;
~~determining a polarization mismatch loss for two orthogonal polarization components;~~
~~weighing a tracking response amplitude by the polarization mismatch loss~~ summing sequentially detected orthogonal polarizations to provide a tracking input; and
selecting a polarization of a data channel depending upon the stronger signal component.

13. (original) A system for antenna tracking, comprising:

means for detecting orthogonally polarized signals of a tracking channel, determining which of the orthogonally polarized signals is stronger, and suppressing a cross polarization response of the tracking channel; and

a controller configured to select a polarization of a data channel depending upon which of the orthogonally polarized signals is stronger.

14. (withdrawn) The system for antenna tracking of claim 13, wherein the means for detecting orthogonally polarized signals of a tracking channel, determining which of the orthogonally polarized signals is stronger, and suppressing a cross polarization response of the tracking channel includes

means for combining the orthogonally polarized signals after the orthogonally polarized signals are detected.

15. (withdrawn) The system for antenna tracking of claim 13, wherein the means for detecting orthogonally polarized signals of a tracking channel, determining which of the orthogonally polarized signals is stronger, and suppressing a cross polarization response of the tracking channel includes

two tracking receivers configured for detecting the orthogonally polarized signals, respectively, and

means for matching tracking amplitude responses of the two tracking receivers.

16. (currently amended) The system for antenna tracking of claim 13, wherein the means for detecting orthogonally polarized signals of a tracking channel, determining which of the orthogonally polarized signals is stronger, and suppressing a cross polarization response of the tracking channel includes

a tracking receiver configured to switch between tracking channel inputs for the orthogonally polarized signals and to generate sequential orthogonal polarization outputs, and

a sequential summer configured to receive the sequential orthogonal polarization outputs and to ~~generate a summed output that is weighted by a polarization mismatch loss of the orthogonally polarized signals~~ provide an antenna control unit (ACU) input signal; and

wherein the controller is configured to select the polarization of the data channel based on the higher signal level from the sequential orthogonal polarization outputs.